

Service Manual

Radio Cassette RX-FT500

Stereo Radio Cassette Recorder

**Color**

(K) Black Type

Country Code	Areas	Color
(E)	Continental Europe	(K)
(EB)	Great Britain	
(EG)	F.R. Germany /Italy	

RX-CT800 MECHANISM SERIES**■ SPECIFICATIONS****General:**

Power Requirement: AC: (E) (EG)... 220 V, 50 Hz
(EB) 240 V, 50 Hz
Battery; 9 V (Six UM-1, "R20/LR20" batteries)

Power Consumption: 16 W (AC only)

Power Output: 8 W (4 W×2)...RMS (max.)
20 W (10 W×2)...PMPO
10 W (5 W×2)...MPO

Speaker: Woofer; 10 cm PM Dynamic Speaker (2.7Ω)
Tweeter; 1.5 cm

Jacks:
Input; CD/LINE IN; 398 mV, 47 kΩ
Output; HEADPHONES; 32Ω, Ø3.5

Dimensions: 556 (W)×150 (H)×146 (D) mm

Weight: 2.8 kg without batteries

Radio Section:

Radio Frequency Range: FM; 87.5~108 MHz
LW; 148.5~285 kHz
MW; 520~1610 kHz
SW; 5.9~18 MHz

Intermediate Frequency: FM; 10.7 MHz
AM; 459 kHz

Sensitivity: FM; 2.2 μV/50 mW output (-3 dB Limit Sens.)
LW; 142 μV/m/50 mW output
MW; 142 μV/m/50 mW output
SW; 4 μV/50 mW output

Tape Deck Section:

TAPE 1
Frequency Response: 50~12,000 Hz
Tape Speed: 4.8 cm/s
Track System: 4-track 2-channel stereo playback

Tape Deck Section:

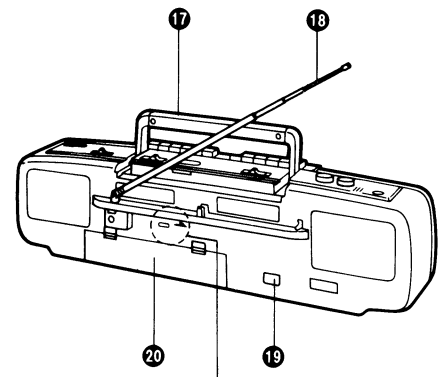
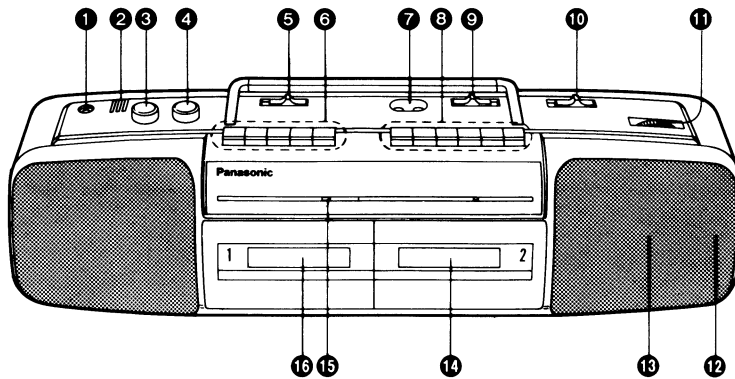
TAPE 2
Frequency Response: 50~12,000 Hz
Recording System: AC bias, Magnet erase
Tape Speed: 4.8 cm/s
Track System: 4-track 2-channel stereo recording and playback

Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

LOCATION OF CONTROLS



When the tape is caught in the pinch roller, etc. Release the tape by turning the pulley on the motor with the screwdriver in the direction of the arrow.

① Headphones Jack (PHONES) ($\varnothing 3.5$, 32 Ω)

Speakers automatically cut off when headphones are connected.

When using the headphones, avoid listening to sound for a long period of time and avoid excessive volume levels, which may injure your ears.

② Built-in Microphone (MIC)

③ Volume Control (VOLUME)

④ Tone Control (TONE)

⑤ Function Selector (SELECTOR)

⑥ Tape 1 (For Playback)

Pause Button (|| PAUSE)
Stop/Eject Button (■ STOP/EJECT)
Fast Forward Button (◀◀ FF)
Rewind Button (▶▶ REW)
Playback Button (◀ PLAY)

⑦ CD/Line Input Jacks (CD/LINE IN) (398 mV, 47 k Ω)

⑧ Tape 2 (For Recording and Playback)

Pause Button (|| PAUSE)
Stop/Eject Button (■ STOP/EJECT)
Fast Forward Button (◀◀ FF)
Rewind Button (▶▶ REW)
Playback Button (◀ PLAY)
Record Button (● RECORD)

⑨ Editing/FM Mode Selector/Beat Proof Switch (EDITING/FM MODE/B.P)

⑩ Band Selector (BAND)

⑪ Tuning Control (TUNING)

⑫ Speakers [Tweeter] (1.5 cm)

⑬ Speakers [Woofer] (10 cm, 27 Ω)

⑭ Tape 2 Cassette Compartment

⑮ FM Stereo Indicator (FM STEREO)

⑯ Tape 1 Cassette Compartment

⑰ Handle

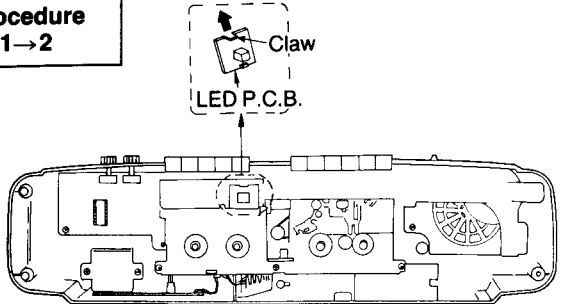
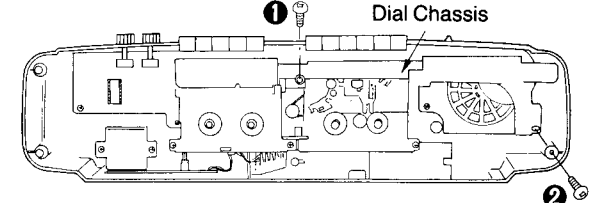
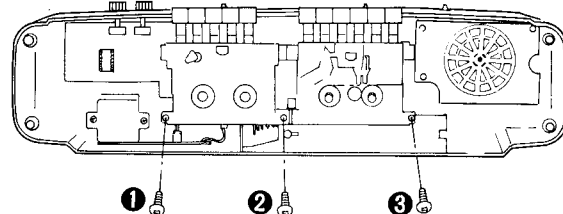
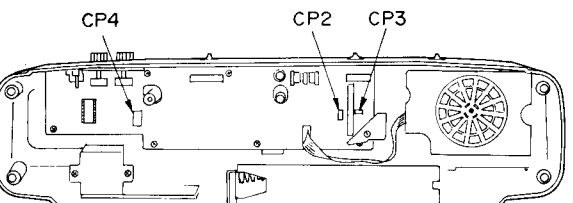
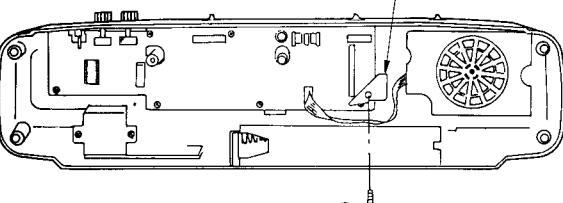
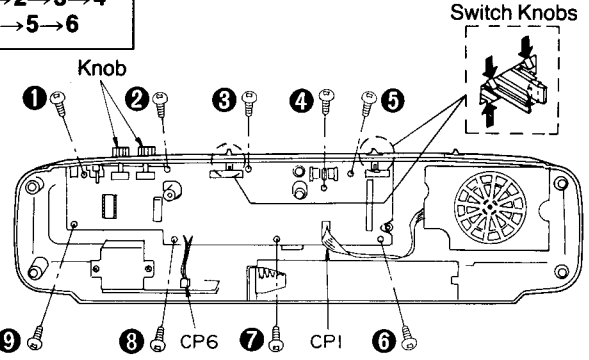
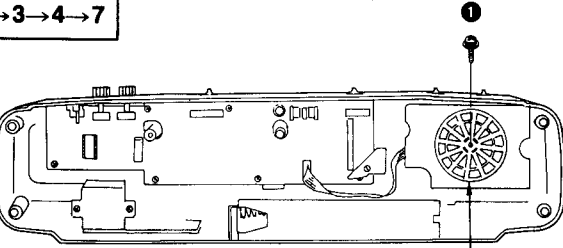
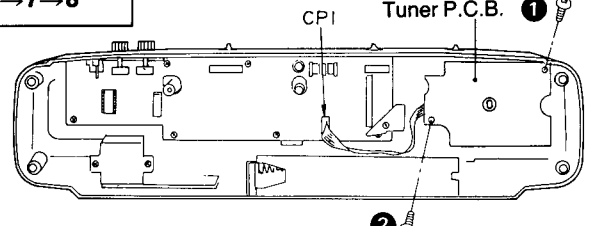
⑱ Telescopic Antenna

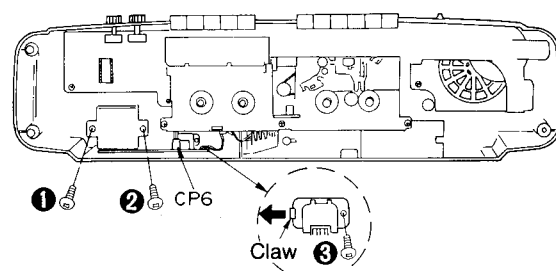
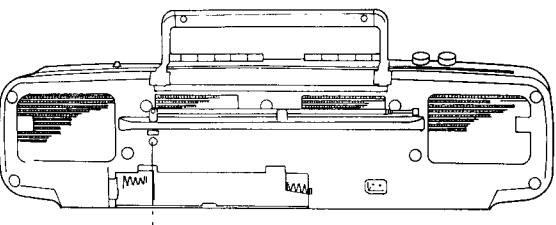
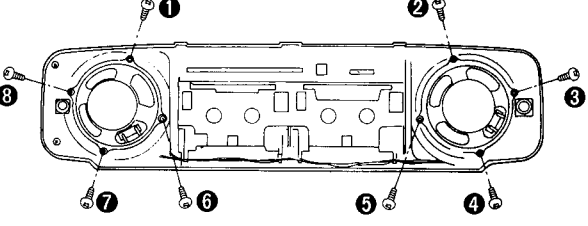
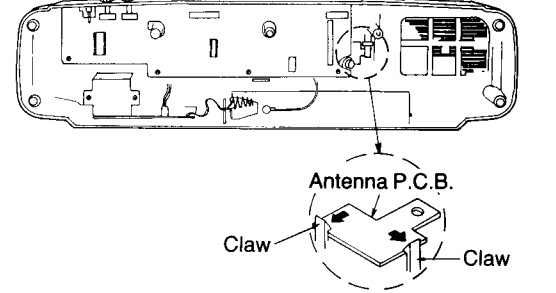
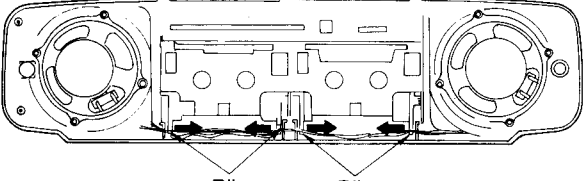
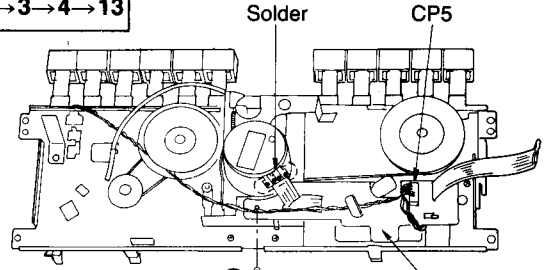
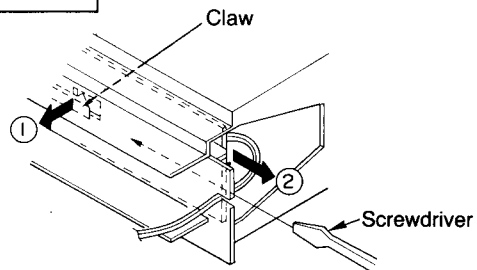
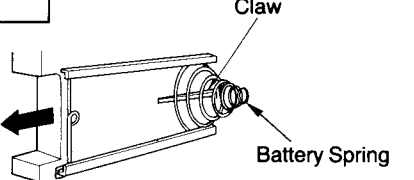
⑲ AC Socket (AC IN~)

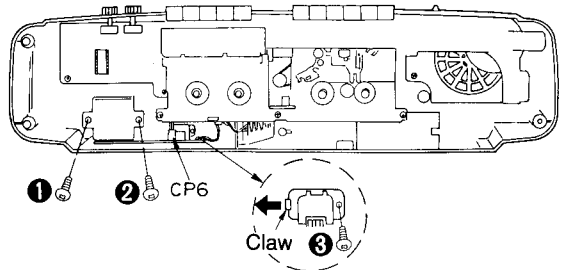
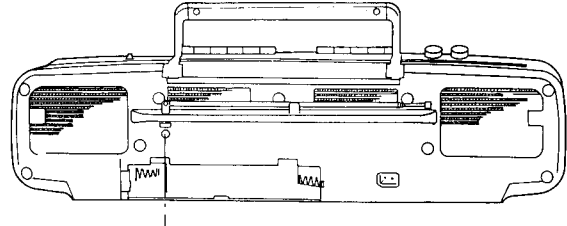
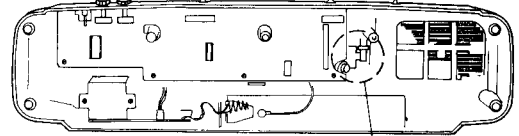
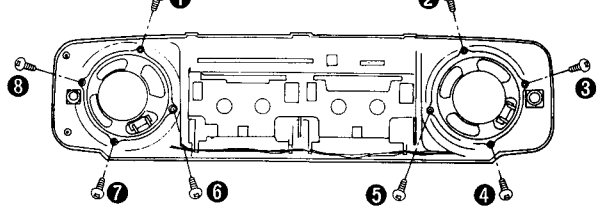
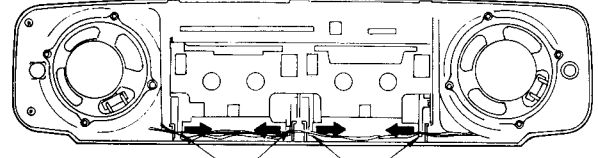
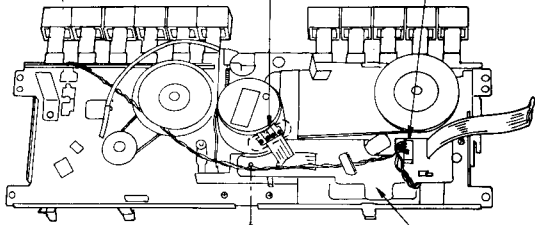
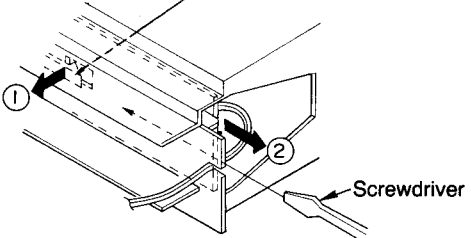
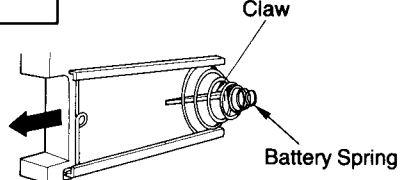
⑳ Battery Compartment

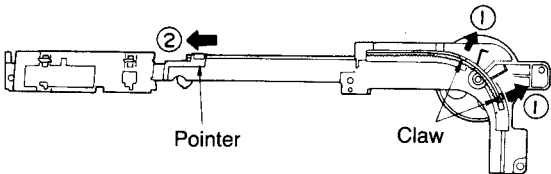
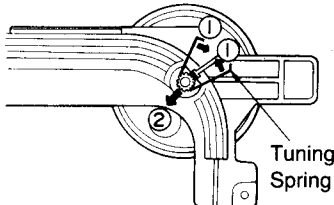
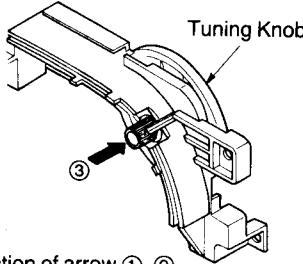
DISASSEMBLY INSTRUCTIONS

Ref. No. 1	Removal of the Front Cabinet
Procedure 1	TAPE 2 STOP/EJECT BUTTON TAPE 1 STOP/EJECT BUTTON 1. Remove the battery cover. 2. Remove 8 screws (①~⑧). 3. Press the STOP/EJECT button. 4. Remove the connector (CP7).

Ref. No. 2 Removal of the LED P.C.B. Procedure 1→2  •Release the claw in the direction of arrow.	Ref. No. 3 Removal of the Dial Chassis Procedure 1→2→3  •Remove 2 screws (1, 2).
Ref. No. 4 Removal of Mechanism Procedure 1→2→3→4  1. Remove 3 screws (1~3).	 2. Remove 3 connectors (CP2, CP3, CP4).
Ref. No. 5 Removal of the Record Lever Procedure 1→2→3→4→5  •Remove the screw (1).	Ref. No. 6 Removal of the Main P.C.B. Procedure 1→2→3→4→5→6  1. Remove 2 connector (CP1, CP6). 3. Pull out 2 knobs. 2. Remove 2 switch knobs. 4. Remove 9 screws (1~9).
Ref. No. 7 Removal of the Tuning Knob Procedure 1→2→3→4→7  •Remove the screw (1).	Ref. No. 8 Removal of the Tuner P.C.B. Procedure 1→2→3→4→7→8  1. Remove the connector (CP1). 2. Remove 2 screws (1, 2).

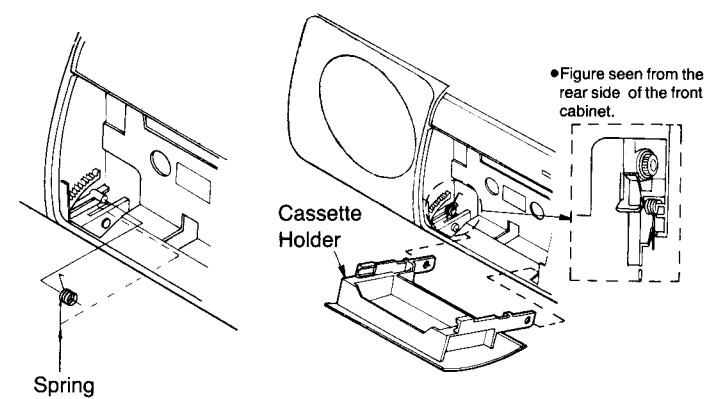
Ref. No. 9 Removal of the Power P.B.C. Procedure 1→9  1. Remove the connector (CP6). 2. Remove 3 screws (1~3). 3. Remove the claw in the direction of arrow.	Ref. No. 10 Removal of the Antenna P.C.B. Procedure 1→2→3→4→7→8→10  1. Remove the screws (1).
Ref. No. 11 Removal of the Speaker Procedure 1→11  •Remove 8 screws (1~8).	 2. Remove 2 claws.
Ref. No. 12 Removal of the Cassette Compartment Procedure 1→12  •Remove 4 ribs in the direction of arrows.	Ref. No. 13 Removal of the Mechanism P.C.B. Procedure 1→2→3→4→13  1. Remove the solder. 2. Remove the connector (CP5). 3. Remove the screw (1).
Ref. No. 14 Removal of the Battery P.C.B. Procedure 1→14  •Remove the claw in the direction of arrow ① and then remove the battery P.C.B. in the direction of arrow ②.	Ref. No. 15 Removal of the Battery Spring Procedure 15  1. Remove the claw and then remove the battery spring in the direction of arrow.

Ref. No. 9	Removal of the Power P.C.B.	Ref. No. 10	Removal of the Antenna P.C.B.
Procedure 1→9		Procedure 1→2→3→4 →7→8→10	
	 1. Remove the connector (CP6). 2. Remove 3 screws (1~3). 3. Remove the claw in the direction of arrow.	 1. Remove the screws (1).	 2. Remove 2 claws.
Ref. No. 11	Removal of the Speaker		
Procedure 1→11			
	 Remove 8 screws (1~8).		
Ref. No. 12	Removal of the Cassette Compartment	Ref. No. 13	Removal of the Mechanism P.C.B.
Procedure 1→12		Procedure 1→2→3→4→13	
	 Remove 4 ribs in the direction of arrows.	 1. Remove the solder. 2. Remove the connector (CP5). 3. Remove the screw (1).	
Ref. No. 14	Removal of the Battery P.C.B	Ref. No. 15	Removal of the Battery Spring
Procedure 1→14		Procedure 15	
	 Remove the claw in the direction of arrow 1 and then remove the battery P.C.B. in the direction of arrow 2.	 1. Remove the claw and then remove the battery spring in the direction of arrow.	

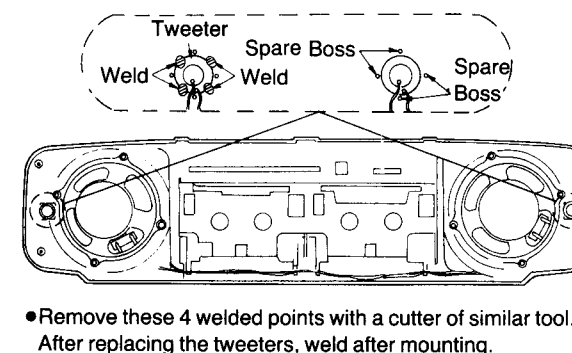
Ref. No. 16	Removal of the Pointer	Ref. No. 17	Removal of the Tuning Knob
Procedure 1→2→3→16		Procedure 1→2→3→16 →17	
	 Pointer Claw	 Tuning Spring	 Tuning Knob
●Release 2 claws in the direction of arrows ① and then remove the pointer in the direction of arrow ②.			

Notes When Assembling

■ HOW TO MOUNT THE CASSETTE HOLDER

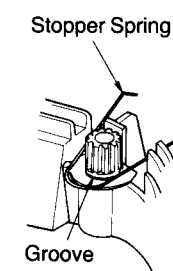


■ HOW TO REPLACE THE TWEETERS

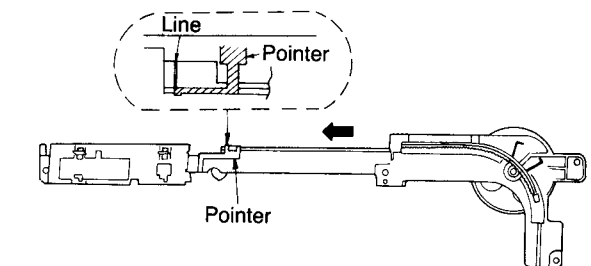


■ HOW TO ATTACH THE STOPPER SPRING

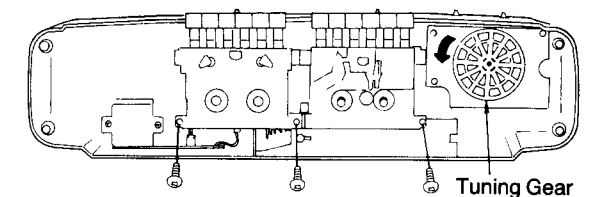
- Securely fix the stopper spring in the groove.



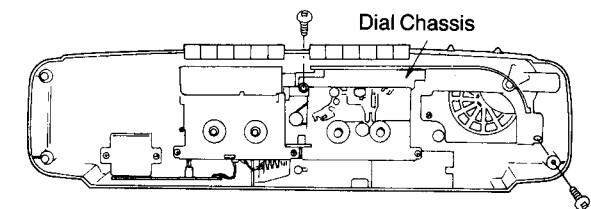
■ HOW TO MOUNT THE DIAL CHASSIS



- Align the pointer as shown in the figure above.

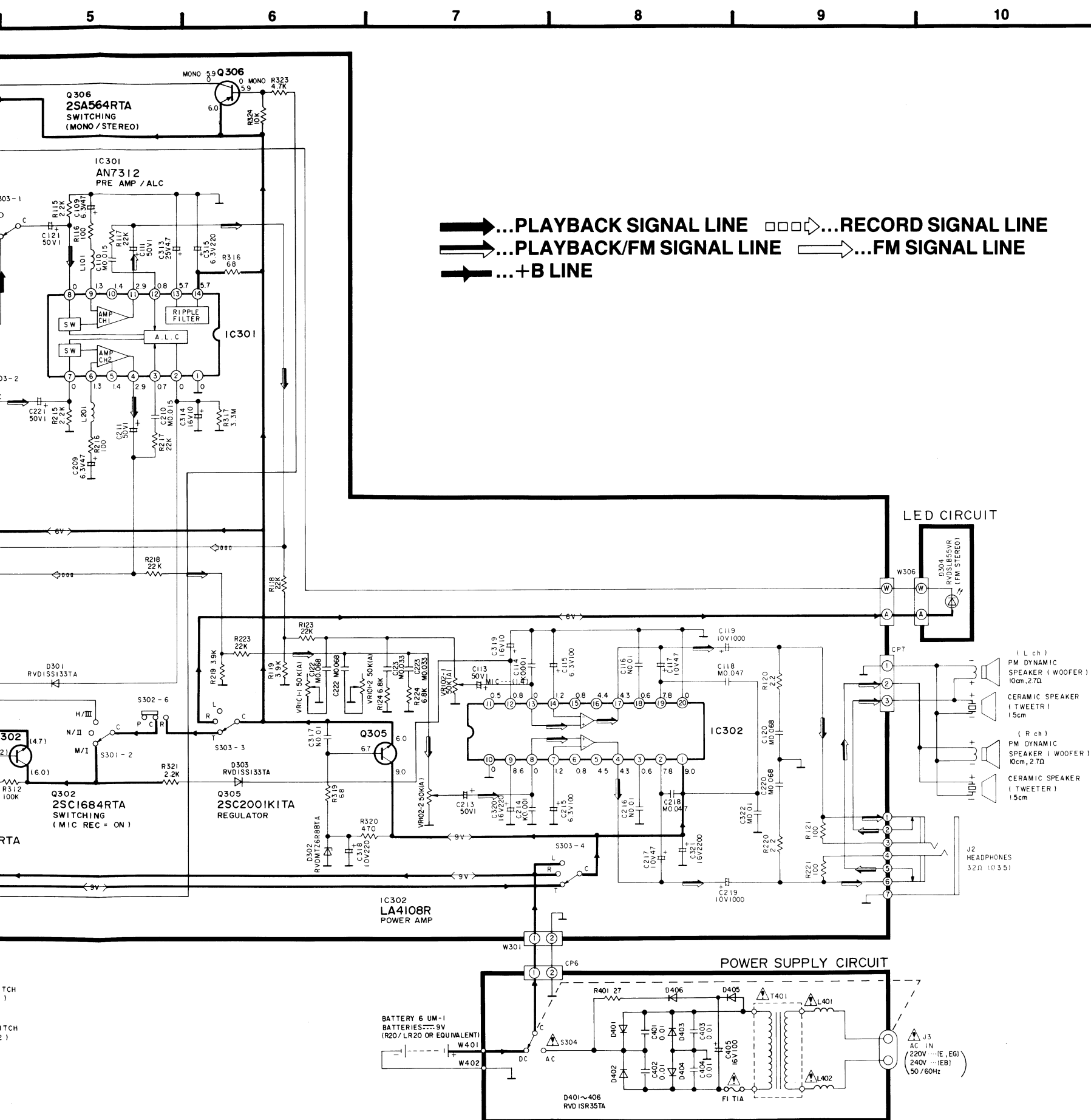


- Mount the mechanism.
- Fully turn the tuning gear in the direction of the arrow.



- Attach the dial chassis.

CIRCUIT (Parts list on Page 16 and 17)



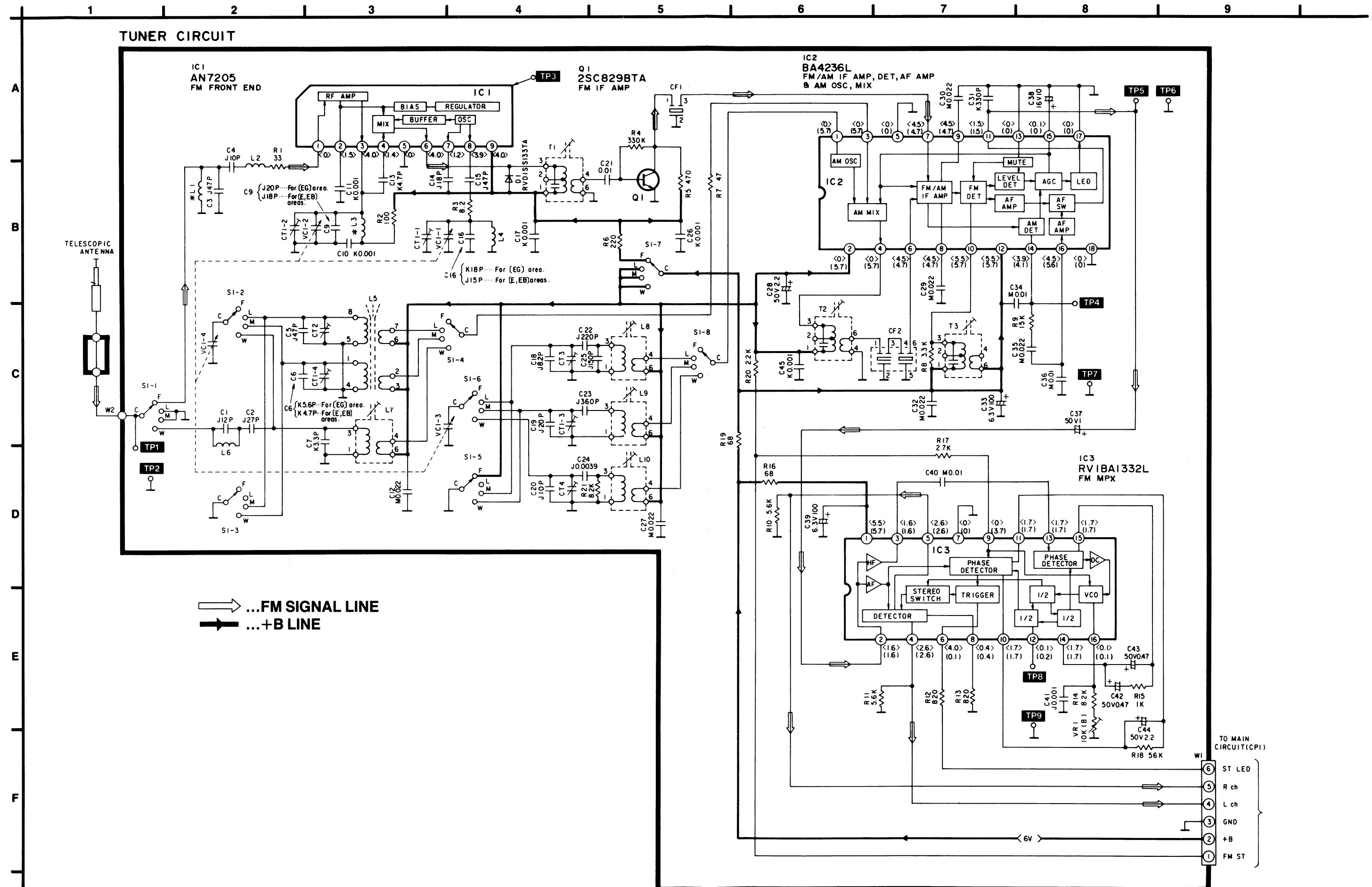
Notes:

- S1-1~S1-8: Band select switch in "FM" position.
(F...FM, L...LW, M...MW, W...SW)
 - S301-1, S301-2: Editing/FM mode/Beat proof switch in "MIC/MONO/I" position.
(M/I...MIC/MONO/I, N/II...NORMAL/STEREO/II, H/III...HIGH/III)
 - S302-1~S302-6: Record/Playback switch in "PLAYBACK" position.
(P...PLAYBACK, R...RECORD)
 - S303-1~S303-4: Function selector switch in "TAPE/POWER OFF" position.
(T...TAPE/POWER OFF, R...RADIO, L...CD/LINE IN)
 - S304: AC/DC select switch in "DC" position.
 - S305: Tape 1 motor switch.
 - S306: Tape 2 motor switch.
 - VR1: FM VCO adjustment VR.
 - VR101-1, VR101-2: Tone control VR.
 - VR102-1, VR102-2: Volume control VR.
 - VR501: Tape speed adjustment VR.
 - DC voltage measurements are taken with electronics voltmeter.
The negative terminal of the battery provides negative meter connection point.
No mark...PLAYBACK, ()...RECORD,
< >...FM, ()...AM
 - Battery current: Vol. min. 65 mA (Radio)
160 mA (Tape Playback)
Vol. max. 840 mA (Radio)
975 mA (Tape Playback)
- Measurement instruction
 (Radio: FM 60 dB, 30% Mod.)
 (Tape: 315 Hz, 0 dB)
- Important safety notice.
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
 - The mark ($\blacksquare$) shows test point e.g. **TP1** = test point 1.

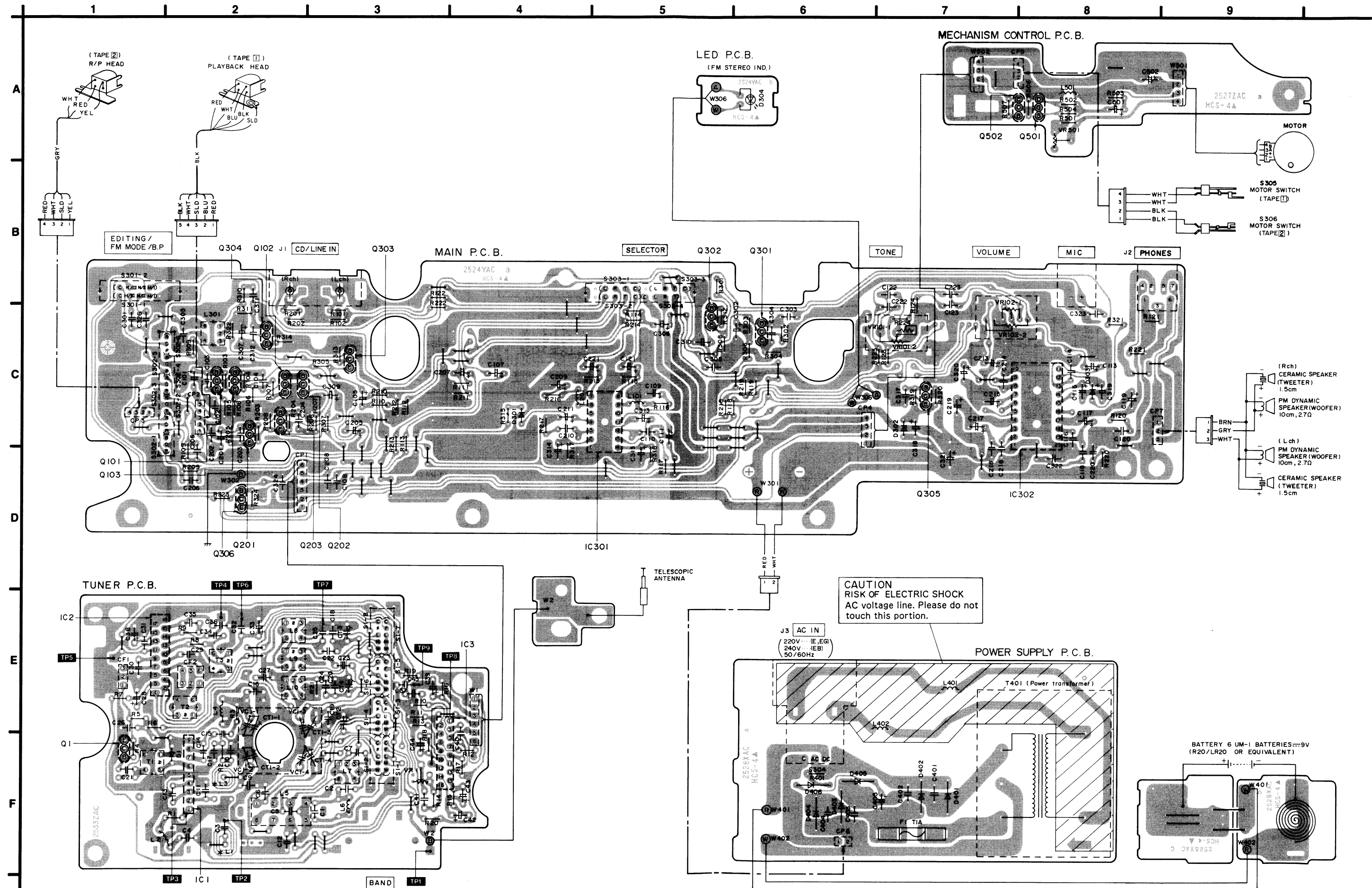
•This schematic diagram may be modified at any time with the development of new technology.

AN7205 9 Pin	AN7312 14 Pin	BA4236L 18 Pin	LA4108R 20 Pin	RV1BA1332L 16 Pin
	2SA564RTA 2SC1684RTA 2SC1684STA 2SC2001KITA	2SK301QTA	RVDISR35TA RVDISS133TA	RVDMTZ6R8BTA

SCHEMATIC DIAGRAM • TUNER CIRCUIT



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum.	5. Set power source voltage to 9 V DC.
2. Set tone control to TREBLE.	6. Set FM mode/B.P switch to STEREO/III.
3. Set band switch to LW, MW, SW or FM.	7. Output of signal generator should be no higher than necessary to obtain an output reading.
4. Set function selector to radio or tape.	

■ LW, MW and SW ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
AM-IF ALIGNMENT						
(1)	MW	Fashion a loop of several turns of wire and radiate the signal into loop ant. of the receiver.	459 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/ about 600 kHz)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2. and then connect the lead wires of the plug to the measuring instrument.)	T2 (AM IFT) Adjust for maximum output.
LW-RF ALIGNMENT						
(2)	LW	"	(E) (EB) ...136 kHz (EG)...137 kHz	Tuning capacitor fully closed.	"	L8 (LW OSC Coil) "
(3)	LW	"	297 kHz	Tuning capacitor fully open.	"	CT3 (LW OSC Trimmer) "
(4)	LW	"	145 kHz	Tune to signal	"	(*1) L5-1 (LW ANT Coil) Adjust for maximum output. Adjust L5-1 by moving the ferrite core.
(5)	LW	"	285 kHz	"	"	CT2 (LW ANT Trimmer) Adjust for maximum output. Repeat steps (2)~(5).
(*1) Cement antenna ferrite core with wax after completing alignment.						
MW-RF ALIGNMENT						
(6)	MW	"	(E) (EB) ...511 kHz (EG)...514 kHz	Tuning capacitor fully closed.	"	L9 (MW OSC Coil) Adjust for maximum output.
(7)	MW	"	(E) (EB) ...1650 kHz (EG)...1639 kHz	Tuning capacitor fully open.	"	CT1-3 (MW OSC Trimmer) "
(8)	MW	"	550 kHz	Tune to signal	"	(*2) L5-2 (MW ANT Coil) Adjust for maximum output. Adjust L5-2 by moving the ferrite core.
(9)	MW	"	1500 kHz	"	"	CT1-4 (AM ANT Trimmer) Adjust for maximum output. Repeat steps (6)~(9).
(*2) Cement antenna ferrite core with wax after completing alignment.						

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT	REMARKS	
	CONNECTIONS	FREQUENCY					
SW-RF ALIGNMENT							
(10)	SW	Connect to test point TP1 through ceramic capacitor (10 pF). Negative side to test point TP2 .	5.75 MHz	Tuning capacitor fully closed.	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2. and then connect the lead wires of the plug to the measuring instrument.)	L10 (SW OSC Coil)	Adjust for maximum output.
(11)	SW		18.8 MHz	Tuning capacitor fully open.	"	CT4 (SW OSC Trimmer)	"
(12)	SW		5.9 MHz	Tune to signal.	"	L7 (SW ANT Coil)	Adjust for maximum output. Repeat steps (10)~(12).

■ FM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
FM-IF ALIGNMENT						
(13)	FM	High side thru. 0.001 μF to test point TP3 . Negative side to test point TP2 .	10.7 MHz (SWP)	Point of non-interference. (on/ about 90 MHz).	Connect vert. amp. of scope to test point TP4 . Negative side to test point TP6 .	T1 (FM 1st IFT) Wave form is shown Fig. 3.
(14)	FM	"	"	"	"	T3 (FM 2nd IFT) Wave form is shown Fig. 4.
FM-RF ALIGNMENT						
(15)	FM	Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2 .	(E) (EB) ...86.2 MHz (EG)...87.35MHz	Variable capacitor fully closed.	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2. and then connect the lead wires of the plug to the measuring instrument.)	L4 (FM OSC Coil) (*2) Adjust for maximum output.
(16)	FM		(E) (EB) ...109.2 MHz (EG)...108.25 MHz	Variable capacitor fully open.	"	CT1-1 (FM OSC Trimmer) "
(17)	FM		106 MHz	Tune to signal.	"	CT1-2 (FM ANT Trimmer) Adjust for maximum output. Repeat steps (15)~(17).
(*2) three output responses will be present; proper tuning is the center frequency.						

■ SEPARATION ALIGNMENT

FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
98 MHz, 60 dB (CW) Connect to test point TP1 through FM dummy antenna. Negative side to TP2 .	TP8 ... (+) TP9 ... (-)	VR1	19 kHz	Adjust VR1, for 19 kHz ±50 Hz reading on frequency counter.

■ HEAD AZIMUTH ALIGNMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
QZZCFM (8 kHz, -20 dB)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2. and then connect the lead wires of the plug to the measuring instrument.)	Azimuth screw (Shown in Fig. 5)	Maximum output	●Playback mode.

■ TAPE SPEED ADJUSTMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	REMARKS
QZZCWAT (3 kHz)	Headphones Jack (32Ω) (Fabricate the plug as shown in Fig. 2. and then connect the lead wires of the plug to the measuring instrument.)	VR501 (Shown in Fig. 6)	Normal Speed Adjustment 1. Insert a test tape (QZZCWAT) in Tape 2 and play it back. 2. Adjust VR501 until the measured value becomes 3000±30 Hz.
	3. Check Tape 1 in the same way to make sure it satisfies the specification. Tape 1...±50 Hz of the speed of Tape 2. If it doesn't repeat steps 1 and 2 above. Note: This set uses one drive motor, so be sure to perform the adjustment in Tape 2. High Speed Measurement 4. Insert the playback tape into Tape 1 and the editing tape into Tape 2. 5. Set the Editing Mode Selector to the "HIGH" position. 6. Press the Tape 2 Pause button, then press the Record Button. 7. Press the Tape 1 Playback Button. •Editing is started by means of the Synchro-Start function. 8. Check to be sure that the measured speed is at least 1.7 times faster than normal speed.		

■ ALIGNMENT POINT

•Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

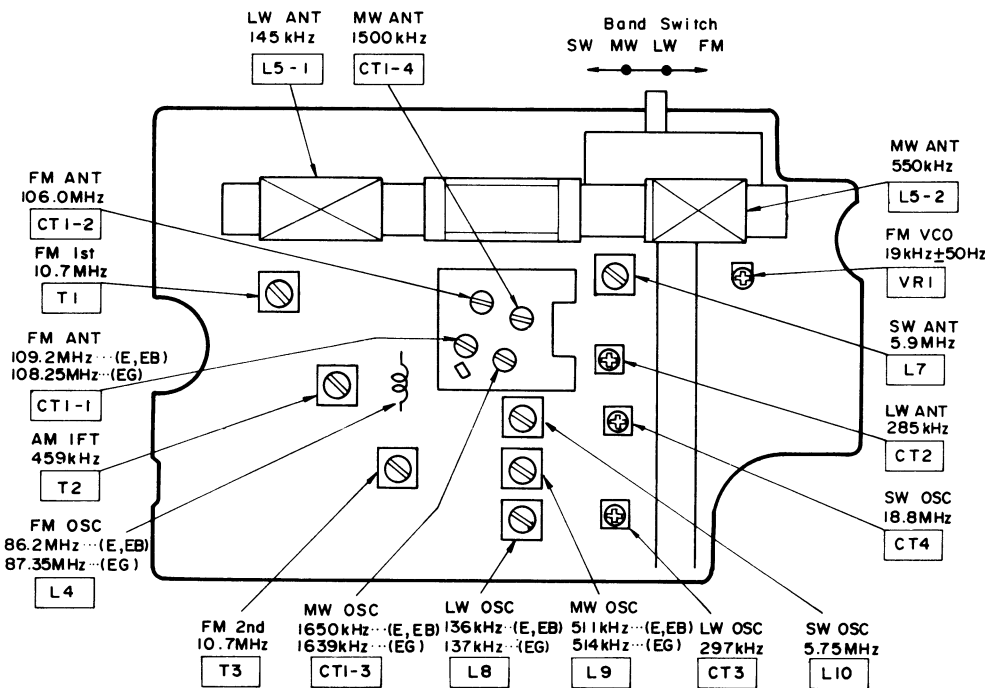


Fig. 1

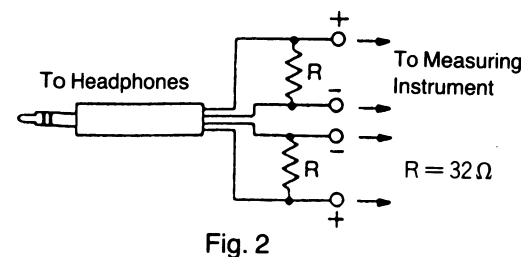


Fig. 2

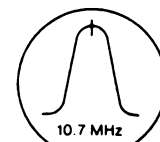


Fig. 3



Fig. 4

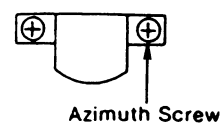


Fig. 5

MECHANISM CONTROL P.C.B

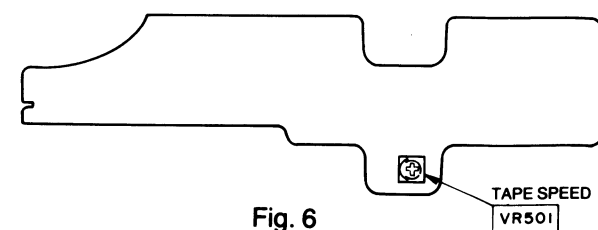


Fig. 6

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

* Δ indicates parts that are supplied by MESA.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS			VC1	RCV4RC2V2K	V.C
IC1	AN7205	I.C. FRONT END	COILS AND TRANSFORMERS		
IC2	BA4236L	I.C. FM/AM IF	L2	RLQY30S1	COIL
IC3	RV18A1332L	I.C. FM MPX	L4	RLD4Y53	COIL
IC301	AN7312	I.C. PRE AMP/ALC	(E, EB)		
IC302	LA4108R	I.C. POWER	L4	RL04N233-0	COIL Δ
TRANSISTORS			(EG)		
Q1	2SC829D	TRANSISTOR	L5	RLF6W9-0	COIL Δ
Q101	2SC1685-Q	TRANSISTOR	L6	RLQY30S4	COIL
Q102	2SC1685-Q	TRANSISTOR	L7	RLA3B41	COIL
Q103	2SC1685-Q	TRANSISTOR	L8	RL01B13	COIL
Q201	2SC1685-Q	TRANSISTOR	L9	RL02B108	COIL
Q202	2SC1685-Q	TRANSISTOR	L10	RLA3B41	COIL
Q203	2SC1685-Q	TRANSISTOR	L101	RLQZP1R0KT-Y	COIL
Q301	2SC1685-Q	TRANSISTOR	L201	RLQZP1R0KT-Y	COIL
Q302	2SC1685-Q	TRANSISTOR	L301	RL09B17	COIL
Q303	2SA722-S	TRANSISTOR	L401	RLQZB1R0K	COIL
Q304	2SC1685-Q	TRANSISTOR	L402	RLQZB1R0K	COIL
Q305	2SC2001K1	TRANSISTOR	L501	RLQZV470KT-D	COIL
Q306	2SA722-S	TRANSISTOR	T1	RL14B153	I.F. TRANSFORMER
Q501	2SK301QTA	TRANSISTOR Δ	T2	RL12B153	I.F. TRANSFORMER
Q502	2SC1685-Q	TRANSISTOR	T3	RL14B153	I.F. TRANSFORMER
DIODES			T401	Δ RL75K3A10A-X	POWER TRANSFORMER
D1	RVD1SS133	DIODE	(EB)		
D301	RVD1SS133	DIODE	T401	Δ RL75K3G20A-X	POWER TRANSFORMER Δ
D302	RVDMTZ6R88	DIODE	(E, EG)		
D303	RVD1SS133	DIODE	FILTERS		
D304	RVDSLB55VR	DIODE	CF1	RVF107WDZ	CERAMIC FILTER
D401	RVD1SR35	DIODE	CF2	RVFSFZ459JL	CERAMIC FILTER Δ
D402	RVD1SR35	DIODE	FUSES		
D403	RVD1SR35	DIODE	F1	Δ XBA2C10TB0K	FUSE
D404	RVD1SR35	DIODE	SWITCHES		
D405	RVD1SR35	DIODE	S1	RSS4H04XA-H	SW. BAND Δ
D406	RVD1SR35	DIODE	S301	RSS3B45XA-H	SW. EDIT/FM MODE Δ
VARIABLE RESISTORS			S302	RSH2F18ZA-A	SW. R/P
VR1	RVNCA14B1T-A	V.R. FM VCO Δ	S303	RSS3D30ZA-H	SW. FUNCTION Δ
VR101	EWCVHAF15A54	V.R. TONE	S304	RJJ1A5Z	JACK W/SW(J3)
VR102	EWCUHAF10A54	V.R. VOLUME	S305	RFA90ZA	SW. TAPE1 MOTOR
VR501	EVND4AA00B53	V.R. TAPE SPEED	S306	RFA90ZA	SW. TAPE2 MOTOR
VARIABLE CAPACITORS			JACKS		
CT2	ECRLA020E52	TRIMMER CAPACITOR Δ	J1	RJF1089Z	JACK, CD/LINE IN
CT3	ECRLA020E52	TRIMMER CAPACITOR Δ	J2	RJJ07S2Z	JACK, HEADPHONES
CT4	ECRLA010A53R	TRIMMER CAPACITOR	J3	Δ RJJ1A5Z	JACK W/SW

■ RESISTORS & CAPACITORS

Notes : * Important safety notice :
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1K Ω)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470 Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001 μ F)	Tolerance	Unique
ECEA	50	M		330
Type	Voltage (50V)	Characteristics	Value (33 μ F)	

- Capacity values are in microfarads (μ F) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000 Ω , 1M = 1,000k Ω

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : $\pm 5\%$
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : $\pm 1\%$
ERQ : Fuse Type Metal	1A : 1W	18 : 1/8W	G : $\pm 2\%$
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : $\pm 5\%$
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : $\pm 10\%$
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : $\pm 20\%$
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wire-Wound			
RRJ : Chip Resistor			
ERJ : Chip Resistor			

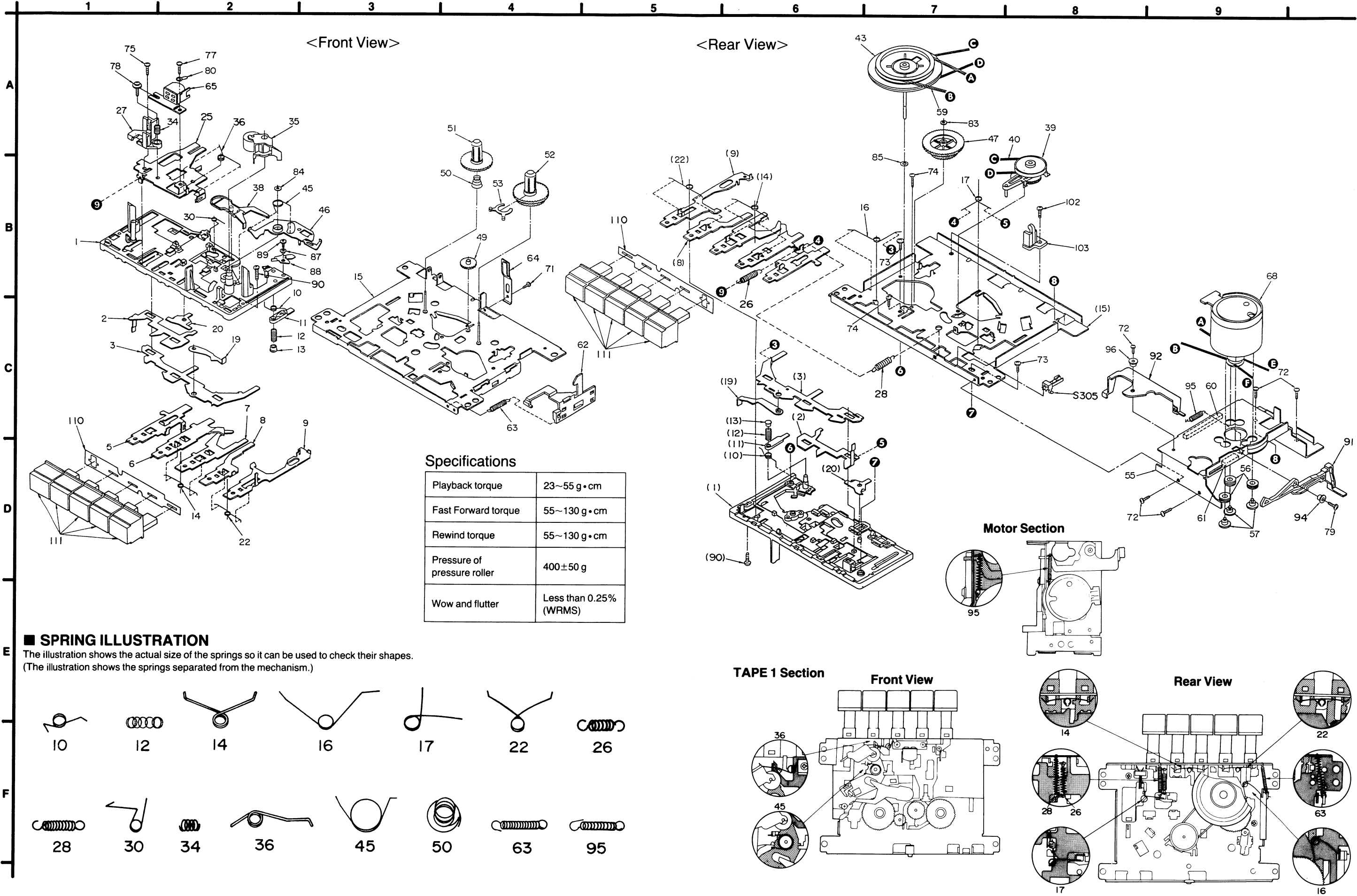
Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : $\pm 10\%$
ECCD : Ceramic	1C : 16V	1E : 25V	M : $\pm 20\%$
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80% -20
ECOM : Polyester	50 : 50V	05 : 50V	
ECQP : Polypropylene	2H : 500V	2A : 100V	J : $\pm 5\%$
ECG : Ceramic	1 : 100V	1J : 63V	G : $\pm 2\%$
ECEA N : Non Polar Electrolytic	KC : 400V AC		F : $\pm 1\%$
QCU : Ceramic (Chip Type)	KC : 125V AC		C : $\pm 0.25\mu$ F
ECUX : Ceramic (Chip Type)	(UL)		D : $\pm 0.5\mu$ F
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
C16 (E, EB)	RCBS1H150JC	15P 50	C105	ECEA1EU4R7	10 50	C219	ECEA1AU102	1000 10
C17	RCBS1H102KB	0.001 50	C106	RCBS1H102KB	0.001 50	C220	ECFV1E683MD	0.068 25
C18	RCBS1H8R2KCY	8.2P 50	C107	ECEA1HU010	1 50	C221	ECEA1HU010	1 50
C19	RCBS1H200JC	20P 50	C108	RCBS0J153MY	0.015 6.3	C222	ECFV1E683MD	0.068 25
C20	RCBS1H100JC	10P 50	C109	ECEA0JU470	47 6.3	C223	ECFT1C333MD	0.033 16
C21	RCBS1C103NYY	0.01 16	C110	RCBS0J153MY	0.015 6.3	C301	ECCT1H181K	180P 50
C22	ECQP2A221JZ	220P 100	C111	ECEA1HU010	1 50	C302	ECEA0JU221	220 6.3
C23	ECQP2A361JZ	360P 100	C113	ECEA1HU010	1 50	C303	ECFV1E473MD	0.047 25
C24	ECQP1392JZ	0.0039 100	C114	RCBS1H102KB	0.001 50	C304	RCBS1H102KB	0.001 50
C25	ECQP2A151JZ	150P 100	C115	ECEA0JU101B	100 6.3	C305	ECQP1272JZ	0.0027 100
C26	RCBS1H102KB	0.001 50	C116	RCBS1C103NYY	0.01 16	C306	ECEA1HU010	1 50
C27	ECFT1C223MD	0.022 16	C117	ECEA1AU470	47 10	C307	ECEA0JU221	220 6.3
C28	ECEA1HU2R2	2.2 50	C118	ECFV1E473MD	0.047 25	C308	ECFV1C104MD	0.1 16
C29	ECFT1C223MD	0.022 16	C119	ECEA1AU102	1000 10	C309	ECEA0JU471	470 6.3
C30	ECFT1C223MD	0.022 16	C120	ECFV1E683MD	0.068 25	C310	ECEA1CU100	10 16
C31	RCBS1H331KB	330P 50	C121	ECEA1HU010	1 50	C311	ECFT1C223MD	0.022 16
C32	ECFT1C223MD	0.022 16	C122	ECFV1E683MD	0.068 25	C312	RCBS1C103MY	0.01 16
C33	ECEA0JU101B	100 6.3	C123	ECFT1C333MD	0.033 16	C313	ECEA1EU4R7	10 50
C34	RCBS1C103MY	0.01 16	C201	ECEA1HU010	1 50	C314	ECEA1CU100	10 16
C35	ECFT1C223MD	0.022 16	C202	RCBS1H101KB	100P 50	C315	ECEA0JU221	220 6.3
C36	RCBS1C103MY	0.01 16	C203	RCBS1H471KB	470P 50	C317	RCBS1C103NYY	0.01 16
C37	ECEA1HU010	1 50	C204	ECFV1C104MD	0.1 16	C318	ECEA1AU221	220 10
C38	ECEA1CU100	10 16	C205	ECEA1EU4R7	10 50	C319	ECEA1CU100	10 16
C39	ECEA0JU101B	100 6.3	C206	RCBS1H102KB	0.001 50	C320	ECEA1CV221SE	220 16
C40	RCBS1C103MY	0.01 16	C207	ECEA1HU010	1 50	C321	ECEA1CS222	2200 16
C41	ECQP2A102JZT	0.001 100	C208	RCBS0J153MY	0.015 6.3	C322	ECKD1H103ZF	0.01 50
C42	ECEA50Z47E	0.47 50	C209	ECEA0JU470	47 6.3	C323	RCBS1H181KB	180P 50
C43	ECEA50Z47E	0.47 50	C210	RCBS0J153MY	0.015 6.3	C324	ECCT1H181K	180P 50
C44	ECEA1HU2R2	2.2 50	C211	ECEA1HU010	1 50	C326	ECCD1H331K	330P 50
C45	RCBS1H102KB	0.001 50	C213	ECEA1HU010	1 50	C401	ECKD1H103ZF	0.01 50
C101	ECEA1HU010	1 50	C214	RCBS1H102KB	0.001 50	C402	ECKD1H103ZF	0.01 50
C102	RCBS1H101KB	100P 50	C215	ECEA0JU101B	100 6.3	C403	ECKD1H103ZF	0.01 50
C103	RCBS1H471KB	470P 50	C216	RCBS1C103NYY	0.01 16	C404	ECKD1H103ZF	0.01 50
C104	ECFV1C104MD	0.1 16	C217	ECEA1AU470	47 10	C405	ECEA1CU101	100 16
			C218	ECFV1E473MD	0.047 25	C501	ECEA1CU330	33 16
						C502	ECEA1CV221SE	220 16

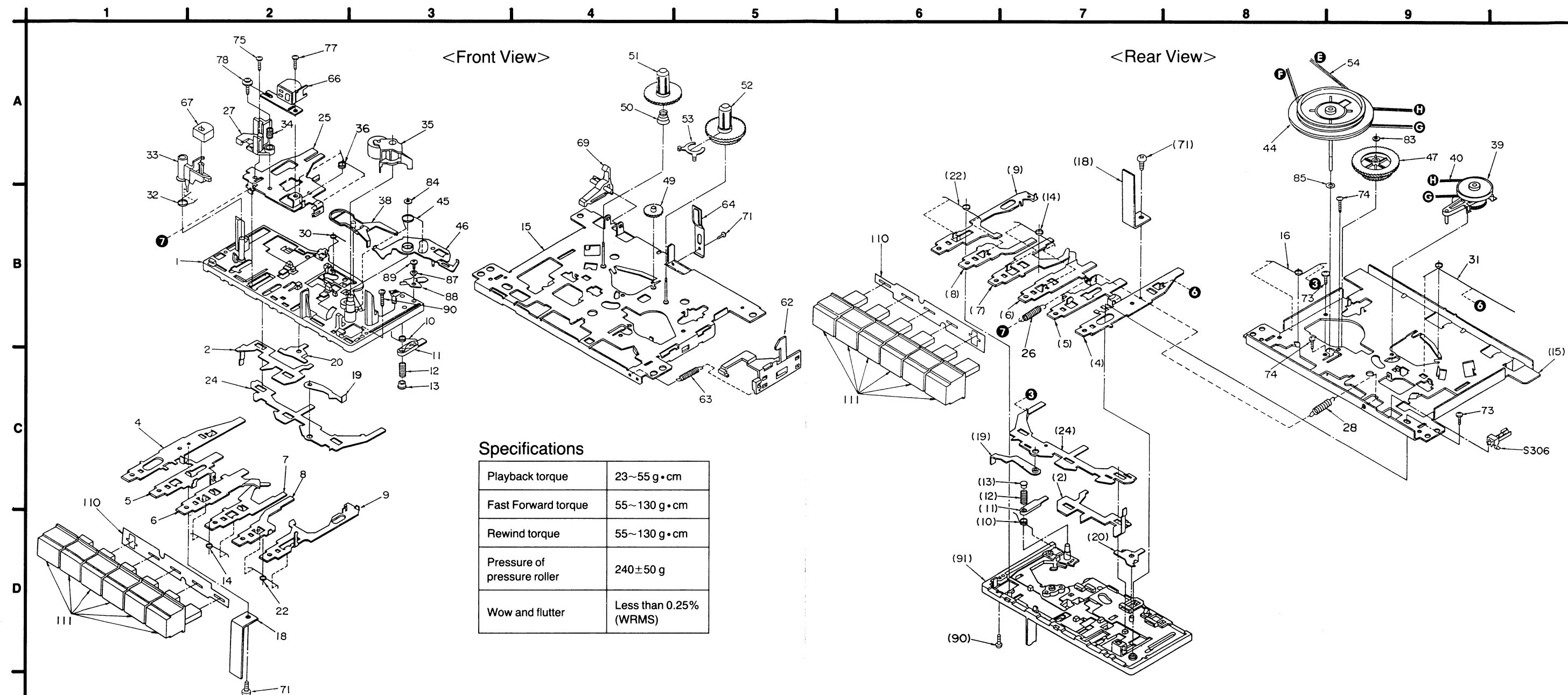
Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
RESISTORS(VALUE, WATTAGE)			R120	ERDS2TJ2R2	2.2 1/4	R313	ERDS2TJ102	1K 1/4
R1	ERDS2TJ330	33 1/4	R121	ERDS2TJ101	100 1/4	R314	ERDS2TJ6R8T	6.8 1/4
R2	ERDS2TJ101	100 1/4	R122	ERDS2TJ222	2.2K 1/4	R315	ERDS2TJ104	100K 1/4
R3	ERDS2TJ8R2	8.2 1/4	R123	ERDS2TJ223	22K 1/4	R316	ERDS2TJ680	68 1/4
R4	ERDS2TJ334	330K 1/4	R124	ERDS2TJ682	6.8K 1/4	R317	ERDS2TJ335T	3.3M 1/4
R5	ERDS2TJ471	470 1/4	R201	ERDS2TJ473	47K 1/4	R319	ERDS2TJ680	68 1/4
R6	ERDS2TJ221	220 1/4	R202	ERDS2TJ331	330 1/4	R320	ERDS2TJ471	470 1/4
R7	ERDS2TJ470	47 1/4	R203	ERDS2TJ335T	3.3M 1/4	R321	ERDS2TJ222	2.2K 1/4
R8	ERDS2TJ332	3.3K 1/4	R204	ERDS2TJ273	27K 1/4	R322	ERDS2TJ561	560 1/4
R9	ERDS2TJ153	15K 1/4	R205	ERDS2TJ470	47 1/4	R323	ERDS2TJ472	4.7K 1/4
R10	ERDS2TJ562	5.6K 1/4	R206	ERDS2TJ122	1.2K 1/4	R324	ERDS2TJ103	10K 1/4
R11	ERDS2TJ562	5.6K 1/4	R207	ERDS2TJ821	820 1/4	R401	ERG12SJ270E	
R12	ERDS2TJ821	820 1/4	R208	ERDS2TJ152	1.5K 1/4	R501	ERDS2TJ153	15K 1/4
R13	ERDS2TJ821	820 1/4	R209	ERDS2TJ153	15K 1/4	R502	ERDS2TJ123	12K 1/4
R14	ERDS2TJ822	8.2K 1/4	R210	ERDS2TJ122	1.2K 1/4	R503	ERDS2TJ102	1K 1/4
R15	ERDS2TJ102	1K 1/4	R211	ERDS2TJ332	3.3K 1/4	R504	ERDS2TJ103	10K 1/4
R16	ERDS2TJ680	68 1/4	R212	ERDS2TJ472	4.7K 1/4	R506	ERDS2TJ105	1M 1/4
R17	ERDS2TJ272	2.7K 1/4	R213	ERDS2TJ683	68K 1/4	R507	ERDS2TJ103	10K 1/4
R18	ERDS2TJ563	56K 1/4	R214	ERDS2TJ273	27K 1/4	CAPACITORS(VALUE, VOLTAGE)		
R19	ERDS2TJ680	68 1/4	R215	ERDS2TJ222	2.2K 1/4	C1	RCBS1H120JC	12P 50
R20	ERDS2TJ222	2.2K 1/4	R216	ERDS2TJ101	100 1/4	C2	RCBS1H270JL	27P 50
R21	ERDS2TJ822	8.2K 1/4	R217	ERDS2TJ223	22K 1/4	C3	RCBC1H470JL	47P 50
R101	ERDS2TJ473	47K 1/4	R218	ERDS2TJ273	27K 1/4	C4	RCBS1H100JC	10P 50
R102	ERDS2TJ331	330 1/4	R219	ERDS2TJ382	3.9K 1/4	C5	RCBC1H470JL	47P 50
R103	ERDS2TJ335T	3.3M 1/4	R220	ERDS2TJ2R2	2.2 1/4	C6	RCBC1H4R7KC	4.7P 50
R104	ERDS2TJ273	27K 1/4	R221	ERDS2TJ101	100 1/4	(E, EB)		
R105	ERDS2TJ470	47 1/4	R222	ERDS2TJ222	2.2K 1/4	C6	RCBS1H5R6KC	5.6P 50
R106	ERDS2TJ122	1.2K 1/4	R223	ERDS2TJ223	22K 1/4	(EG)		
R107	ERDS2TJ821	820 1/4	R224	ERDS2TJ682	6.8K 1/4	C7	RCBS1H3R3KC	3.3P 50
R108	ERDS2TJ152	1.5K 1/4	R301	ERDS2TJ332	3.3K 1/4	C9	RCBS1H180JC	18P 50
R109	ERDS2TJ153	15K 1/4	R302	ERDS2TJ334	330K 1/4	(E, EB)		
R110	ERDS2TJ122	1.2K 1/4	R303	ERDS2TJ102	1K 1/4	C9	RCBS1H200JC	20P 50
R111	ERDS2TJ332	3.3K 1/4	R304	ERDS2TJ6R8T	6.8 1/4	(EG)		
R112	ERDS2TJ472	4.7K 1/4	R305	ERDS2TJ471	470 1/4	C10	RCBS1H102KB	0.001 50
R113	ERDS2TJ683	68K 1/4	R306	ERDS2TJ561	560 1/4	C11	RCBS1H102KB	0.001 50
R114	ERDS2TJ273	27K 1/4	R307	ERDS2TJ472	4.7K 1/4	C12	ECFT1C223MD	0.022 16
R115	ERDS2TJ222	2.2K 1/4	R308	ERDS2TJ332	3.3K 1/4	C13	RCBC1H4R7KC	4.7P 50
R116	ERDS2TJ101	100 1/4	R309	ERDS2TJ562	5.6K 1/4	C14	RCBS1H180JC	18P 50
R117	ERDS2TJ223	22K 1/4	R310	ERDS2TJ101	100 1/4	C15	RCBC1H470JL	47P 50
R118	ERDS2TJ273	27K 1/4	R311	ERDS2TJ333	33K 1/4	C16	ECCT1H180KS	18P 50
R119	ERDS2TJ382	3.9K 1/4	R312	ERDS2TJ104	100K 1/4	(EG)		

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
MECHANISM			49	RFG110ZA	GEAR
CASSETTE DECK			50	RFS838ZA	SPRING
1	RFU154ZA	CHASSIS ASS'Y	51	RFJ89ZA	REEL ASS'Y
2	RFY866ZA	PLATE	52	RFJ90ZA	REEL ASS'Y
3	RFY906ZA	LEVER	53	RFY875ZA	SENSOR
4	RFY886ZA	LEVER	54	RFB90ZA	BELT
5	RFY912ZA	LEVER	55	RFD395ZA	MOTOR BRACKET
6	RFY897ZA	LEVER	56	RFI27Z	MOTOR RUBBER
7	RFY886ZA	LEVER	57	SMQ4918	SCREW
8	RFY889ZA	LEVER	59	RFB98ZA	MAIN BELT
9	RFY952ZA	LEVER	60	RFI58ZA	MAT
10	RFS837ZA	SPRING	61	RFI58ZA	MAT
11	RFY930ZA	LEVER	62	RFY889ZA	LEVER
12	RFS813ZA	SPRING	63	RFS826ZA	SPRING
13	RFX174ZA	STOPPER	64	RFS534Z	SPRING
14	RFS814ZA	SPRING	65	RBR4CG004-M	P.B HEAD
15	RFU155ZA	CHASSIS ASS'Y	66	RBR4CG003-M	R/P HEAD
16	RFS815ZA	SPRING	67	RBR2CY004	E.HEAD
17	RFS816ZA	SPRING	68	RFM167ZA	MOTOR ASS'Y
18	RFS799ZA	SPRING	69	RFY716Z	LEVER
19	RFY844ZA	LEVER	71	XTN2+3B	SCREW
20	RFX175ZA	STOPPER	72	XTN2+4B	SCREW
22	RFS818ZA	SPRING	73	XSN2+4	SCREW
24	RFY867ZA	PLATE	74	RFE496ZA	SCREW
25	RFU177ZA	HEAD PANEL	75	XSN2+6	SCREW
26	RFS844ZA	SPRING	77	RFE498ZA	SCREW
27	RFU168ZA	CHASSIS	78	RFE230Z	SCREW
28	RFS843ZA	SPRING	79	RFE454ZA	SCREW
30	RFS820ZA	SPRING	80	RFE504ZA	TERMINAL
31	RFS886ZA	SPRING	83	RFN83Z	WASHER
32	RFS821ZA	SPRING	84	RFN214ZA	WASHER
33	RFY926ZA	ARM	85	RFN122Z	WASHER
34	RFS447Z	SPRING	87	RFY877ZA	COLLAR
35	RFR58ZA	PINCHROLLER ASS'Y	88	RFD396ZA	ARM
36	RFS845ZA	SPRING	89	RFE497ZA	SCREW
38	RFY884ZA	LEVER	90	RFE252Z	SCREW
39	RFQ61ZA	CLUTCH ASS'Y	91	RFY879ZA	LEVER
40	RFB109ZA	BELT	92	RFY583Z	LEVER
43	RF770ZA	FLYWHEEL	94	RFX134Z	COLLAR
44	RF771ZA	FLYWHEEL	95	RFS887ZA	SPRING
45	RFS822ZA	SPRING	96	RFX170ZA	COLLAR
46	RFY874ZA	PLATE ASS'Y	102	XTN2+4F	SCREW
47	RFG136ZA	GEAR	103	RUE83ZA	HOLDER
			110	RHR3070ZCB	SPACER
			111	RBC1397ZA-0	BUTTON, MECHSNISM

MECHANISM PARTS LOCATION • TAPE 1 (For Playback) (Parts list on Page 18.)

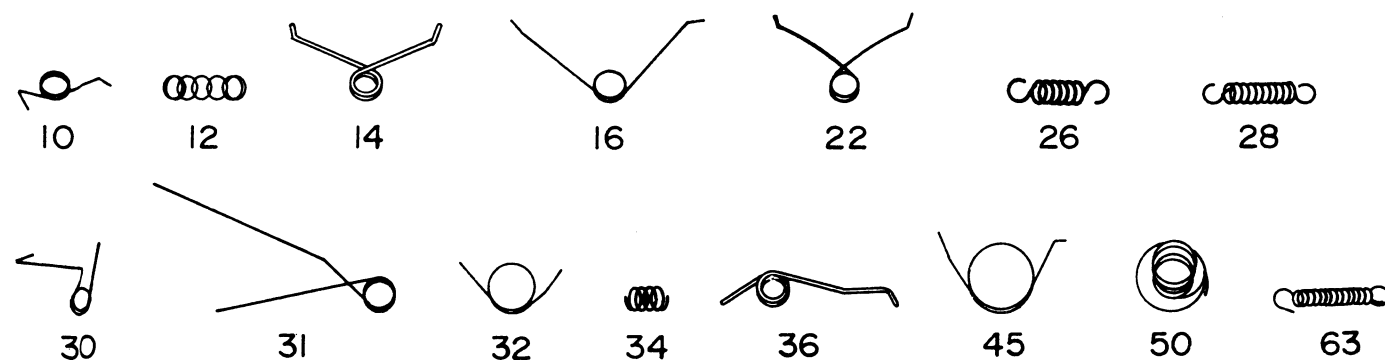


MECHANISM PARTS LOCATION • TAPE 2 (For Recording and Playback) (Parts list on Page 18.)

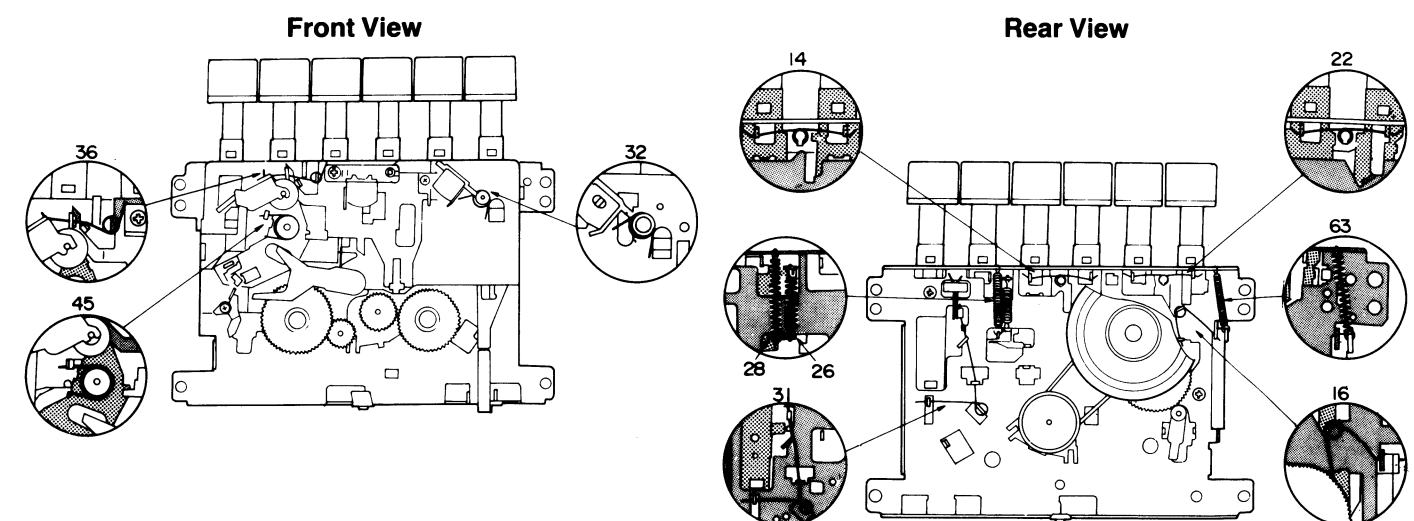


■ SPRING ILLUSTRATION

The illustration shows the actual size of the springs so it can be used to check their shapes.
(The illustration shows the springs separated from the mechanism.)



TAPE 2 Section



This exploded view diagram illustrates the assembly of a portable electronic device. The components are organized into several functional groups:

- Internal Electronics:**
 - (MAIN P.C.B.):** The central printed circuit board, populated with components including a transformer (T401), a fuse (FUSE), and various resistors (e.g., 16, 43, 53).
 - (POWER P.C.B.):** A separate printed circuit board for power regulation, featuring a power transistor (T301) and a diode (D304).
 - (TUNER P.C.B.):** A printed circuit board for tuning, including a variable capacitor (56) and a tuning fork (63).
- Mechanical Structure:**
 - Case:** The outer housing, shown in two parts (top and bottom) with various mounting points and screws.
 - Internal Frame:** A metal frame supporting the internal components, with various mounting brackets and screws.
 - Speakers:** Two circular speakers (25) mounted on the front panel (26).
 - Controls:** A volume knob (30) and a tuning knob (32) are shown with their respective mounting hardware.
- Connectors and Cables:**
 - (MECHANISM) P.C.B.:** A printed circuit board for the mechanical interface, including a switch (35, 47, 49) and a connector (60).
 - (MECHANISM) P.C.B.:** Another printed circuit board for the mechanical interface, including a switch (35, 47, 49) and a connector (61).
 - (POWER P.C.B.):** A printed circuit board for power regulation, including a power transistor (T301) and a diode (D304).
 - (TUNER P.C.B.):** A printed circuit board for tuning, including a variable capacitor (56) and a tuning fork (63).

The diagram uses a coordinate system with letters A through F along the left edge and numbers 1 through 9 along the top edge to identify specific components and their assembly locations.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CABINET AND CHASSIS					
1	XEARR225DAY	TELESCOPIC ANTENNA	(E)	26	RYMXFT500EB FRONT CABINET ASS'Y M
2	RUB564ZA	LEVER M	(EB)	26	RYMXFT500EG FRONT CABINET ASS'Y M
3	RBN6SZA-0	KNOB, VOL/TONE M	(EG)	26A	RAF12E4A01-K SPEAKER M
4	RMCI246ZA	SHIELD PLATE M	27	RUW4S2B	SPRING
5	XYN3+F10FY	SCREW	28	XTV3+8G	SCREW
6	XTN3+12G	SCREW	29	RUA876ZA-0	CHASSIS M
7	XTN3+20G	SCREW	30	RBT327ZA-0	KNOB, TUNING M
8	XTV3+12G	SCREW	31	RDP357ZA-0	POINTER
9	XTW3+25Q	SCREW	32	RUW214ZA	SPRING M
10	RKK318ZC-0	BATTERY COVER M	33	RJM164YA	MICROPHONE M
11	RBD563ZA-0	KNOB, MODE SELECTOR M	34	RJP3G4Y	CONNECTOR(3P)
12	RBD564ZA-0	KNOB, BAND M	35	RJP4G18ZA	CONNECTOR(4P)
15	RJS3L3Z	SOCKET(3P)	36	RJP5G18Z	CONNECTOR(5P)
16	RJT707Z	CONTACT	40	SJT30443-V	TERMINAL
17	RYFXFT500E	REAR CABINET ASS'Y M	41	SJT30643-V	TERMINAL M
(E)	RYFXFT500EB	REAR CABINET ASS'Y M	42	RMC228ZA	SHIELD PLATE M
(EB)	RYFXFT500EG	REAR CABINET ASS'Y M	43	RJS2L3Z	SOCKET(2P)
(EG)	RYFXFT500EG	REAR CABINET ASS'Y M	44	RUP2533ZAC	P.C.B. M
17A	RJC931Z	BATTERY TERMINAL (+/-)	46	XYN26+C6	SCREW
17B	RGT1385WA-0	NAME PLATE M	47	RJS4L4Z	SOCKET(4P)
(EG)	RGT1385YA-0	NAME PLATE M	48	RJS5L4Z	SOCKET(5P)
17B	RGT1385YA-0	NAME PLATE M	49	RJT807ZB-X	CONTACT
(EB)	18	18	52	RMP287ZA	LED HOLDER M
18	XTC3+10CFN	SCREW	53	RJP2G4Y	CONNECTOR(2P)
19	RHG1244ZA	RUBBER M	54	RUP2528XAC	P.C.B. M
20	RKX402ZA-0	ARM M	55	RJC511Z	BATTERY SPRING
21	RKX403ZA-0	HANDLE M	56	WBB6CB-17K1M	FLAT CABLE M
22	RDG5874ZB	GEAR	59	WBB4CB-6K1	FLAT CABLE M
23	RYQ1XFT500P	CASSETTE LID ASS'Y M	60	WBB4CB-11K1M	FLAT CABLE M
24	RYQ2XFT500P	CASSETTE LID ASS'Y M	61	XTN2+4F	SCREW
25	EAS10P241NJ	SPEAKER M	62	RJF28Z	FUSE HOLDER
26	RYMXFT500E	FRONT CABINET ASS'Y M	63	RDG5958ZA	GEAR M
			64	RJF28Z	FUSE HOLDER
			65	XTN2+4F	SCREW

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
PACKING MATERIAL					
P1	RPH658ZA	PROTECTION BAG M	A1	RJA20Z	POWER CORD
P2	RPN9584ZA	PAD M	{E, EG}		
P3	RPK2828ZA	GIFT BOX M	A1	RJA86ZB-K	POWER CORD
ACCESSORIES			{EB}		
			A2	RQX5244ZA	INST. MANUAL M
			A3	RQX5245ZA	INST. MANUAL M
			{E}		